

CLAIMS

Claims 1-16 (cancelled)

17. (original) A method of transferring articles into and out of a vacuum processing chamber through a load lock chamber, comprising:

forming the load lock chamber around an opening through a wall of an enclosure by an article supporting surface that is sealed to the inside of the wall around the opening and a cover that is sealed to the outside of the wall around the opening, wherein the processing chamber is formed within remaining portions of the enclosure,

moving articles between the load lock chamber and outside of said wall by removing the cover from its seal with the wall while the article supporting surface remains sealed to the wall,

providing an opening between the load lock chamber and the processing chamber by moving the article supporting surface away from the wall while the cover is sealed with the outside of the wall around the opening, and

thereafter moving articles between the load lock chamber and the processing chamber through said opening.

18. (original) The method of claim 17, wherein moving articles between the load lock chamber and the processing chamber includes simultaneously swapping the locations of a first article in the load lock chamber and a second article in the processing chamber.

19. (original) The method of claim 18, wherein swapping of the first and second articles includes moving said articles toward each other, then rotating the articles together through substantially one-hundred eighty degrees and thereafter moving said articles away from each other.

20. (original) The method of any one of claims 17-19, wherein the first and second articles are each domes carrying a plurality of integrated circuit wafers for processing.

21. (original) The method of any one of claims 17-19, wherein the first and second articles

are wedge shaped portions of circular domes carrying a plurality of integrated circuit wafers for processing.

22. (original) The method of claim 21, wherein the wedge shaped dome portions are truncated along a side opposite to a circular side.

23. (original) The method of claim 21, wherein the wafers are processed by depositing material there over from evaporation within the processing chamber.

24. (original) The method of claim 17, wherein moving articles between the load lock chamber and the processing chamber includes moving the article supporting surface with articles thereon laterally between the load lock chamber and the processing chamber.

25. (original) The method of claim 17 wherein moving articles between the load lock chamber and the processing chamber includes:

moving articles from one of the load lock chamber or the processing chamber to a separate exchange location within the vacuum chamber,

thereafter moving articles from the other of the load lock chamber or the processing chamber to said one of the load lock chamber or processing chamber, and

thereafter moving articles from the exchange location to said other of the load lock chamber or the processing chamber.

26. (original) A method of moving articles between a vacuum processing chamber and a load lock chamber, comprising:

moving at least one article in the processing chamber and at least one article in the load lock chamber towards each other,

thereafter, simultaneously rotating the articles about a point located between them through substantially one-hundred eighty degrees, and

thereafter, moving the articles away from each other into the processing and load lock chambers, whereby the positions of the articles have been swapped.

27. (original) The method of claim 26 wherein the articles that are moved include domes carrying a plurality of integrated circuit wafers for processing.

28. (original) The method of claim 26, wherein the articles that are moved are wedge shaped portions of circular domes carrying a plurality of integrated circuit wafers for processing.

29. (original) The method of claim 28, wherein the wedge shaped dome portions that are moved are truncated along a side opposite to a circular side.

Claims 30-31 (cancelled)

32. (currently amended) A method of processing articles within a vacuum chamber and moving the articles between the vacuum chamber and the outside through a load lock chamber, during sequential time intervals, comprising:

during a first time interval, opening the load lock chamber to the outside while remaining closed to the vacuum chamber, simultaneously removing a previously processed first batch of one or more articles from the load lock chamber to the outside and loading a second batch of one or more articles from the outside into the load lock chamber, while a third batch of one or more articles is being processed in the vacuum chamber,

during a second time interval, closing the load lock chamber to the outside, reducing the pressure within the load lock chamber to substantially that of the vacuum chamber, and opening the load lock chamber to the vacuum chamber, while the third batch of one or more articles is being processed in the vacuum chamber

during a third time interval, simultaneously moving the second batch of one or more articles from the load lock chamber to the vacuum chamber and moving the third batch of one or more articles from the vacuum chamber to the load lock chamber,

during a fourth time interval, closing the load lock chamber from the vacuum chamber and then venting the load lock chamber to the outside, while the second batch of one or more articles is being processed in the vacuum chamber, and

during a fifth time interval, opening the load lock chamber to the outside while remaining closed to the vacuum chamber, simultaneously removing the third batch of one or more articles

from the load lock chamber to the outside and loading a fourth batch of one or more articles from the outside into the load lock chamber, while the second batch of one or more articles is being processed in the vacuum chamber. The method of claim 31,

wherein the domed surface is formed of a plurality of wedge shaped pieces that are removeably placed together on a frame, and each of the moving and removing of a domed surface includes sequentially moving one of the wedge shaped pieces at a time.

33. (original) A method of moving a plurality of integrated circuit wafers from one location to another location, comprising:

positioning the plurality of wafers across a plurality of wedge shaped pieces that are fit together on a first frame to form a domed surface,

moving one of the wedge shaped pieces at a time from the first frame to a second frame until all of said plurality of wedge shaped pieces are moved from the first frame to the second frame.

Claims 34-35 (cancelled)

36. (original) A method of moving articles between a vacuum processing chamber and a load lock chamber, comprising:

connecting one end of a transfer arm to at least one article in the processing chamber and another end of the transfer arm to at least one article in the load lock chamber,

thereafter, simultaneously rotating the transfer arm and articles connected thereto through substantially one-hundred eighty degrees about a point intermediate of the ends of the transfer arm, and

thereafter, removing the articles from the ends of the arm in the processing and load lock chambers, whereby the positions of the articles have been swapped simultaneously.

37. (original) A method of moving articles between a vacuum processing chamber and a load lock chamber, comprising:

moving articles from one of the load lock chamber or the processing chamber to a separate exchange location within the vacuum chamber,

thereafter moving articles from the other of the load lock chamber or the processing chamber to said one of the load lock chamber or processing chamber, and

thereafter moving articles from the exchange location to said other of the load lock chamber or the processing chamber.

38. (original) A method of moving at least one article between a vacuum processing chamber and a load lock chamber, comprising:

providing a carriage that is horizontally movable between the vacuum processing and load lock chambers through a gate valve positioned between said chambers when the gate valve is opened,

positioning said at least one article on the carriage when in one of the vacuum processing and load lock chambers, and

thereafter moving the carriage with said at least one article thereon to another of the vacuum processing and load lock chambers.